Prasanjit Dey

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Profile

» I am currently pursuing a Ph.D. in Computer Science focusing on the monitoring and short-term forecasting of atmospheric air pollutants using deep neural networks. As part of my research, I am developing an AI-based prediction system employing deep learning, computer vision, and satellite imagery to provide rapid, precise, and dependable warnings.

Education

2022/09–Present — Ph.D. in Computer Vision and Deep Learning in School of Computer Science
Technological University Dublin — Dublin, Ireland

2014/06–2016/09 — M.Tech in Information Technology
MAKAUT, WB — Kolkata, India
» CGPA: 8.27/10

2009/04–2013/05 — B.Tech in Computer Science and Engineering
WBUT — Kolkata, India
» CGPA: 7.27/10

Scholarship

» I have been awarded a fellowship providing full funding for a 4-year Ph.D. position from the SFI Centre for Research Training in Digitally-Enhanced Reality (CRT-dReal).

Experience

2023/01–2023/06 — Tutor/Senior Demonstrator
Technological University Dublin — Dublin, Ireland
» I served as a Tutor and Senior Demonstrator at the Technological University Dublin in the School of Informatics and Cybersecurity, where I specialized in Secure Programming.

2020/12–2022/08 — Junior Research Fellow
National Institute of Technology Jamshedpur — Jamshedpur, India
» My work involved monitoring and predicting time-series data using deep learning models and computer vision, forecasting air quality pollutants, and analyzing satellite data for predictive insights.

2018/12–2020/10 — Project Assistant-III
Central institute of Mining & Fuel Research — Dhanbad, India
» My responsibilities included developing vision enhancement software for foggy weather using TensorFlow and OpenCV. Also, creating Digital Mine software with Django, Python, and IoT technologies, predicting mine hazards with deep learning models, and developing a voice communication system using Raspberry Pi, MATLAB, and Simulink.

2017/02–2018/07 — Assistant Professor
Ramgovind Institute of Technology — Koderma, India
» I served as an Assistant Professor at Ramgovind Institute of Technology in Koderma, where I taught courses on computer networks, operating systems, database management, algorithms, and data structures.

Project

2022–Current — Monitoring and forecasting of air pollutants using Deep Learning
Technological University Dublin — Dublin, Ireland

» This project aims to forecast atmospheric air pollutants, monitor and identify pollutants using satellite data and image processing, and develop an early warning system for hazardous gases in open air.

2020–2022 — Time-series data prediction using Deep Learning
National Institute of Technology — Jamshedpur, India

» This project included the prediction of time-series data with satellite data and computer vision methodologies.

2018–2020 — Vision Enhancement for Foggy Weather using Computer Vision
CSIR-CIMFR — Dhanbad, India

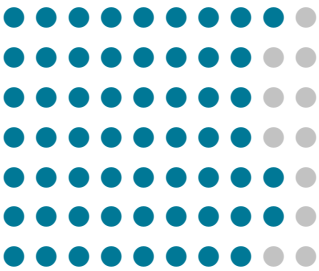
» The project encompassed real-time image stitching using the OpenCV library, real-time vision enhancement algorithms, and real-time object detection using YOLO models.

2018–2020 — Digital Mine Using Internet of Things (IoT)
CSIR-CIMFR — Dhanbad, India

» This project included modules for mine gas monitoring and prediction using deep learning, IoT-based miners tracking, strata monitoring and prediction, and machine health monitoring and prediction using deep learning.

Skills

Python
TensorFlow & PyTorch
AI/ML Libraries
MATLAB & Simulink
C
Latex
Image Processing & OpenCV



Publications in Journal

» **Prasanjit Dey**, Soumyabrata Dev, Bianca Schoen Phelan. "Predicting Multivariate Air Pollution: A Gaussian-Mixture Nested Factorial Variational Autoencoder Approach" IEEE Geoscience and Remote Sensing Letters (2024) (SCIE) (Q1).

» **Prasanjit Dey**, Soumyabrata Dev, Bianca Schoen Phelan. "CombineDeepNet: A Deep Network for Multi-Step Prediction of Near-Surface PM2.5 Concentration" IEEE Journal of Selected Topics in Applied Earth Observations and Remote (2024) (SCIE) (Q1).

» **Prasanjit Dey**, Bibhash Pran Das, Yee Hui Lee, Soumyabrata Dev. "NeSNet: A Deep Network for Estimating Near-surface Pollutant Concentrations." IEEE Journal of Selected Topics in Applied Earth Observations and Remote (2023) (SCIE) (Q1).

» **Prasanjit Dey**, S. K. Chaulya, and Sanjay Kumar. "Hybrid CNN-LSTM and IoT-based coal mine hazards monitoring and prediction system." Process Safety and Environmental Protection (2021) (SCIE) (Q1).

» K Kumari, **Prasanjit Dey** et al. "UMAP and LSTM based fire status and explosibility prediction for sealed-off area in underground coal mine." Process Safety and Environmental Protection 146 (2021): 837-852 (SCIE) (Q1).

» **Prasanjit Dey**, et al. "t-SNE and Variational Auto-Encoder with a bi-LSTM Neural Network-Based Model for Prediction of Gas Concentration in a Sealed-Off Area of Underground Coal Mines." Soft Computing (SCIE).

- **Prasanjit Dey**, et al. "Deep convolutional neural network based secure wireless voice communication for underground mines." Journal of Ambient Intelligence and Humanized Computing (2021): 1-20.
- **Prasanjit Dey**, Swades Kumar Chaulya, and Sanjay Kumar. "Secure decision tree twin support vector machine training and classification process for encrypted IoT data via blockchain platform." Concurrency and Computation: Practice and Experience (2021): e6264 (SCIE).
- Sourav Hati, **Prasanjit Dey**, and Debashis De. "WLAN based energy efficient smart city design." Microsystem Technologies (2019): 1599-1612 (SCI).

Publications in Conference

- Neda Akrami, Yue Li, **Prasanjit Dey** Soumyabrata Dev. "Spatial-Temporal-TES: Reanalysis Dataset based Short-Term Temperature Forecasting System." In 2023 IEEE 7th Conference on Energy Internet and Energy System Integration (EI2), IEEE, 2023.
- **Prasanjit Dey**, Soumyabrata Dev, Bianca Schoen Phelan. "BILSTM-BIGRU A FUSION DEEP NEURAL NETWORK FOR PREDICTING AIR POLLUTANT CONCENTRATION." IEEE GRSS 43rd International Geoscience and Remote Sensing Symposium (IGARSS), 2023.
- **Prasanjit Dey**, Soumyabrata Dev, Bianca Schoen Phelan. "NeSDeepNet: A Fusion Framework for Multi-step Forecasting of Near-surface Air Pollutants" Photonics & Electromagnetics Research Symposium (PIERS), 2023.
- Menatallah Abdel Azeem, **Prasanjit Dey**, Soumyabrata Dev. "A Multidimensionality Reduction Approach to Rainfall Prediction" Photonics & Electromagnetics Research Symposium (PIERS), 2023.
- Aditya Agarwal, **Prasanjit Dey**, and Sanjay Kumar. "Sentiment Analysis using Modified GRU." Proceedings of the 2022 Fourteenth International Conference on Contemporary Computing. 2022.

Publications in Patent

- Inventors: **Prasanjit Dey**, Debashis De, Sourav HatiPatent, number: 465850, Application number: 201831030620, "Location Tracking System for Indoor Environment", Dated: 6-11-2023 (Granted).
- Patent No: 0002NF2020, "Digital mine using Internet of Things", Dated: 07-01-2020.

Copyright Software

- Application No: 007CR2020, DM-Digital Mine Software.
- Application No: 008CR2020, MEMP - Mine Environment Monitoring and Prediction Software.
- Application No: 015CR2020, Real time image processing method and software.
- Application No: 008CR2020, Method and software for real-time image stitching and object detection.

Awards

- CSIR-Central Institute of Mining and Fuel Research, Dhanbad, India, Dr. Adinath Lahiri awards for 2nd prize for the highest Impact Factor (IF) of papers published in SCI journal.

Certification

- NPTEL online certificate of Deep Learning on Jan-April (12 Week), 2020.

Languages

Bengali (native) English (fluent)

REFERRER

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